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The celestine is of the fibrous variety, the fibres being perpendicular to planes of bedding. It is rather pale, the greater part of it having a very faint blue tint.

April 27.

The President, Dr. **Ruschenberger**, in the chair.

Twenty-four members present.

The By-Laws of the Academy were amended, as follows:—Art. 2, Chap. 2, in place of "Minors shall not be eligible as members or correspondents," the following words are substituted :—"Persons not under sixteen years of age may be elected members, provided their nominations be first approved by the Council. Members under the legal age of twenty-one are not entitled to vote at any meeting of the Academy, nor to serve on committees."

On the Structure of the York County Valley Limestone, and on Micro-photography of Minerals.—Prof. **Frazer** asked the permission of the Academy to put on record two observations made since the last meeting. The first concerned the structure of the York County limestone valley. H. D. Rogers (whose work was so accurate and full of thought that corrections can only be hazarded after careful consideration), in his report of a section down the Susquehanna from Wrightsville to Havre de Grace, speaks of two folded anticlinals which separate the main synclinal basin of amoral limestone from the smaller one, which crosses the river from Lancaster County near Cabin Branch Run.

The dips as observed and recorded by my party last season fully justify this interpretation, and were it not for other facts not known at the time the above section was made, no one could hesitate to accept this explanation.

But on comparing seven sections made across the lower silurian measures from Littlestown to Wrightsville, it was found that in every case but the latter, there seemed to be abundant evidence of a vault along which the southeastern half of the valley had been torn away by an upthrow, and the remaining limestone abutted on the lower side of the older slates. It was found that the supposed double anticlinal wave structure depended on a single dip, which it only needs to suppose were local in character to bring this section into conformity with the rest. The symmetrical character of the valley also was based upon a single dip in this latter case, not at all inconsistent with a view which would harmonize all the sections.

The other point which Prof. Frazer desired to record was in connection with the reproduction of the structure of the trap rocks as exhibited in thin slices. Among the causes which had hindered the application of micro-photography to this purpose was the fact that the constituent minerals which were colored yellow or red became black in the photograph. The experiment of photographing the slides in polarized light and in different positions of the analyzer has met with very fair success.

The photographs of the enlargements of 34 and 136 diameters, respectively, had been exhibited in connection with a paper read before the last meeting of the American Philosophical Society, but at that time the expedient of overcoming the anactinism of parts of the image was merely suggested. Since then six photographs of the same part of the same thin section of the dolerite, best known, have been made. In five of these photographs all the conditions remained the same except the position of the analyzer, which was rotated to five points corresponding to maxima and minima of some of the more prominent objects in the field. A particular crystal of pyroxene being selected, it was pointed out that in three of the photographs this was light colored with a dark axis, and in two dark with a light axis. Thus in a series of photographic prints made in this way the minerals which were dark from the anactinism of their transmitted light were easily distinguished from those that were dark from opacity, as for example magnetite.

As a means of still further modifying the conditions, No. 6 was photographed just like No. 4, except that a selenite plate was introduced over the slide and between the prisms. Prof. Frazer concluded by remarking that he had delayed returning the thin slides of Connecticut traps prepared and kindly loaned to him by Mr. E. S. Dana, of New Haven, for exhibition before the Philosophical Society, until he had repeated the experiments before the Academy. He informally invited those members to remain after the present meeting who desired to see the slides in polarized light. The Connecticut and Pennsylvania traps were then projected on the screen and their effect on polarized light illustrated.

Ellicott Fisher and J. S. Alexander were elected members, and Col. T. M. Bryan, of Vincenttown, N. J., was elected a correspondent.

The committees to which they had been referred recommended the following papers to be published:—